# A COMPARISON BETWEEN ISLAMIC AND CONVENTIONAL BOND FUND'S PERFORMANCE IN MALAYSIA

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**MASTER OF SCIENCE (FINANCE)**
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# A COMPARISON BETWEEN ISLAMIC AND CONVENTIONAL BOND FUND'S PERFORMANCE IN MALAYSIA

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## ABSTRACT

The main objective for an investment is to curb inflation. Unit trust is one of common investment vehicle in Malaysia. The main purpose of this study is to compare the performance analysis on Islamic bond funds and Conventional bond funds in Malaysia. The performance of both funds was analyzed over a period of 48 months commencing from January 2011 to December 2014. The monthly returns of 20 bond funds, being 10 Islamic bond funds and 10 Conventional bond funds are extracted from Morningstar system. Performance of unit trust always influenced by risk and return. In this research, the fund performances are evaluated by using six performance measures namely mean return, standard deviation, beta, Treynor index, Sharpe index and Jensen index. The results of this study suggest that Islamic Bond Funds are outperformed the Conventional bond funds during the period of study. On the other hand, Conventional bond funds seem to have a lower risk than Islamic bond funds. Nevertheless, when both funds are compared by using t-Test and ANOVA, results displayed Islamic bond funds and Conventional bond funds have no difference in fund's performance. The findings are highly relevant to investors as well as fund managers.



Keywords: Islamic bond funds, Conventional bond funds, Performance

## ABSTRAK

Tujuan utama pelaburan ialaah untuk membendung inflasi. Dana, juga dikenali sebagai unit amanah, adalah salah satu pelaburan yang popular di kalangan rakyat Malaysia. Tujuan utama kajian ini adalah untuk membandingkan analisis prestasi di antara dana bon Islam dan dana bon Konvensional. Prestasi kedua-dua dana dianalisis untuk tempoh sepangjang 48-bulan bermula dari Januari 2011 sehingga Disember 2014. Pulangan bulanan sebanyak 20 dana bon, iaitu 10 dana bon Islam dan 10 dana bon Konvensional telah diambil dari sistem Morningstar. Prestasi dana bon sentiasa dipengaruhi oleh risiko dan pulangan. Dalam kajian ini, prestasi dana bon dinilai dengan menggunakan enam kaedah iaitu pulangan bulanan, sishan piawan, beta, indeks Treynor, Sharpe dan Jensen. Hasil kajian menunjukkan bahawa prestasi dana bon Islam lebih baik dari dana bon konvensional. Walau bagaimanapun, statistic menunjukkan dana bon konvensional mempunyai risiko yang lebih rendah daripada dana bon Islam. Akan tetapi, apabila kedua-dua dana berbanding dengan menggunakan t-Test dan ANOVA, hasil kajian menunjukkan kedua-dua dana bon tidak mempunyai perbezaan antara prestasi. Penemuan ini sangat bermakna kepada pelabur dan pengurus dana.



Katakunci : Dana bon Islam, Dana bon Konvensional, Prestasi Unit Amanah

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# CHAPTER 1

# INTRODUCTION

## 1.1 Background of Study

A mutual fund or unit trust fund consists of a pool of funds collected from a group of investors with similar investment objectives. The fund is managed by a full time professional fund manager based on the fund's objective and parameter stipulated as per Fund's Deed and Prospectus. A unit trust fund typically consists of equities and bonds. Some sophisticated fund will consist of derivatives, commodities, properties and financial complex instruments.

To safeguard investors' interest, the trustee will hold all of the investment assets which belong to unit holders or investors. Ownership of the collective investment scheme is depending on the number of units holding. The fund price may increase or decrease in value depending on the underlying beneath of the fund holding. The purchase price at the time of investment will eventually determine the number of units held by each investor.

The return on investment of unit holders is usually derived from income distribution and capital appreciation. Investor can opt for auto dividend reinvestment which might generate more return on investment over a long holding period. The level of income distribution and capital gain at any one time will fairly and equally reflect by the unit trust fund's price or net asset value (NAV).

Generally, unit trust investors are typically those who want to do investment but do not have expertise and time to manage their portfolio professionally. They prefer to invest in low risk portfolio through asset diversification which meets their risk appetite and investment objective (Chong, 2005).

Investors can leverage into wide range of investments portfolios through unit trust investment. Some of the investment instruments are not offered to them due to limited product knowledge, affordability and many more other factors. For example, a typical private debt securities (PDS or commonly known as bond) is trading at minimum size of RM5 million per lot. Hence, this may restrict many retail investors to buy direct from bond market. Therefore, unit trust provides opportunities for investors to tap into financial market and maximizes their return through investment.

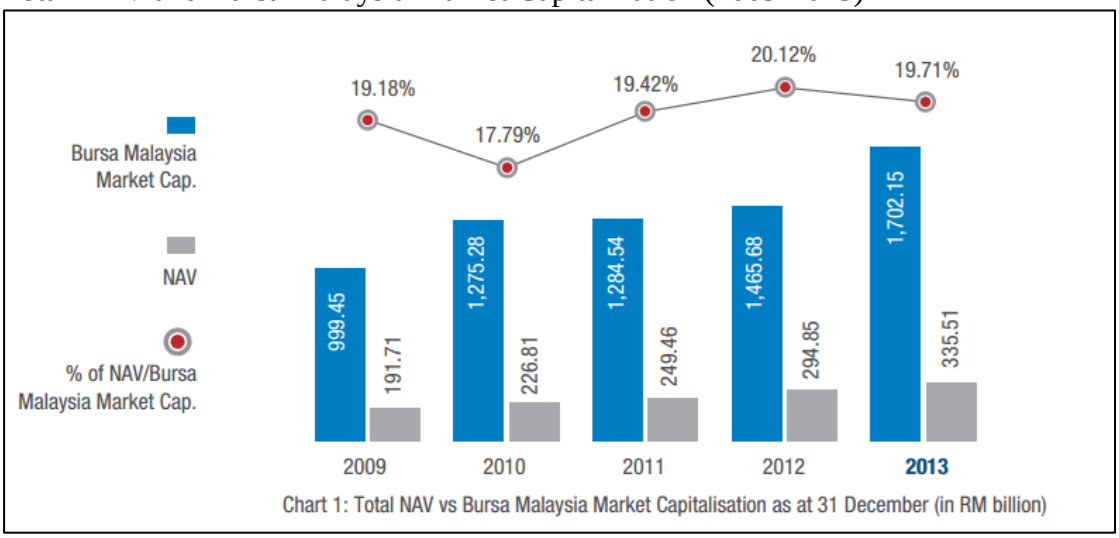
Investors can derive benefit from diversified portfolio and leverage on professional fund manager's skills to meet their investment objective, with minimum initial investment. A diversified portfolio can reduce the portfolio overall risk at the same time maximizes the investor' return.

As unit trust fund is structure with investment parameter which include fund's objective. Hence, investor who invests in one unit trust fund shares the same investment objective with similar risk appetite and fund's strategies. The fund manager will constantly monitor and invest based on the fund's permitted parameter which was clearly stipulated in the fund's deed and prospectus. Therefore, unit trust is one of the investment vehicles for investors to achieve their own financial goal (Abdullah, 2002).

In Malaysia, the first unit trust fund was launched in 1959. Federation of Investment Managers Malaysia (FIMM) was established on 7 August 1993. Since it was established, FIMM helps to promote the unit trust industry; safeguards the interest of unit holders; maintains a good reputation and consistently improves the rule on sales of unit trust. As of today, FIMM's Committee Members is represented by mutual fund management companies in the unit trust industry.

Refer to the Federation of Investment Managers Malaysia's 2013 Annual Report, as of 31st December 2013, total Net Asset Value (NAV) of unit trust funds in Malaysia was RM336 billion. Compared to the same period in previous year, total NAV has increased by almost 14%, which represents close to 20% of Bursa Malaysia total market capitalization. Private mandates saw the fund size improved by 15%, with total fund around RM164 billion as at 31 December 2013. Money market funds also increased to RM39.4 billion. Besides, equity funds that are link with mixed assets and conventional mutual funds have total fund size at RM11 billion and RM33 billion respectively.

Figure 1.1
Total NAV and Bursa Malaysia Market Capitalization (2009-2013)

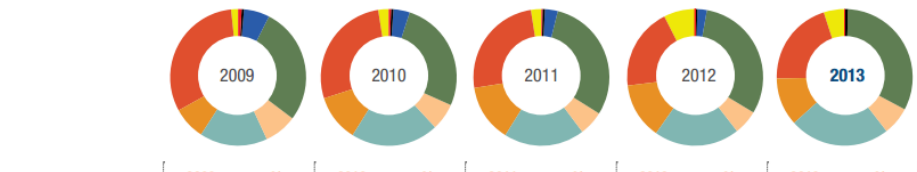



*Source: Federation of Investment Managers Malaysia (FIMM) 2013 Annual Reports*

Refer to Malaysia Economic Report 2014-2015, from January until July 2014, they are 28 new wholesale funds launched. It brings the total number of funds to 221 compared with 193 funds at 31 December 2013. The NAV has increased to RM64.3bil from RM59.5bil at the end of 2013. Eight global funds have invested RM800mil in the foreign markets. In addition, the report said the unit trust industry launched five new funds in January-July of 2014, increasing the number of funds to 600 funds.

Besides, Malaysia has launched the voluntary Private Retirement Scheme (PRS) in July 2012. It helps individuals to accumulate investment for retirement on a long term basis; therefore PRS can serve as our second Employees Provident Fund (EPF) and complements the mandatory contributions made to EPF. Individuals may choose to invest into each PRS based on their own retirement needs, goals and risk appetite. The objective to invest into PRS is to build up retirement fund through long term saving and risk diversification from pool of funds. PRS structure is exactly like a unit trust fund concept.

Figure 1.2
NAV by Types of Funds as 31 December in RM million (2009-2013)




| | 2009 | % | 2010 | % | 2011 | % | 2012 | % | 2013 | % |
|---|---|---|---|---|---|---|---|---|---|---|
| ETF-Equity | 661.00 | (0.84) | 727.03 | (0.73) | 439.15 | (0.42) | 338.39 | (0.24) | 319.59 | (0.19) |
| ETF-Bond General | 516.92 | (0.66) | 584.92 | (0.59) | 590.79 | (0.56) | 584.66 | (0.41) | 684.34 | (0.42) |
| Guaranteed/Protected | 4,925.67 | (6.27) | 3,761.16 | (3.79) | 3,118.47 | (2.95) | 3,127.06 | (2.19) | 182.46 | (0.11) |
| Islamic | 21,706.31 | (27.62) | 26,601.18 | (26.83) | 31,700.96 | (29.98) | 44,163.10 | (30.96) | 52,623.94 | (32.10) |
| Mixed Asset | 6,225.86 | (7.92) | 6,150.67 | (6.21) | 6,156.40 | (5.82) | 8,313.04 | (5.83) | 11,049.04 | (6.74) |
| Money Market | 12,587.04 | (16.02) | 20,779.28 | (20.96) | 20,325.78 | (19.22) | 28,942.07 | (20.29) | 39,374.63 | (24.02) |
| Bond | 6,189.68 | (7.88) | 10,990.45 | (11.09) | 14,420.36 | (13.64) | 18,972.19 | (13.30) | 18,507.29 | (11.29) |
| Equity | 24,664.66 | (31.39) | 27,299.00 | (27.54) | 26,538.95 | (25.10) | 27,562.56 | (19.32) | 33,355.54 | (20.35) |
| Others | 1,099.13 | (1.40) | 2,236.32 | (2.26) | 2,445.13 | (2.31) | 10,640.53 | (7.46) | 7,842.12 | (4.78) |
| **Total** | **78,576.27** | **(100.00)** | **99,130.01** | **(100.00)** | **105,735.99** | **(100.00)** | **142,643.60** | **(100.00)** | **163,938.95** | **(100.00)** |

*Source: Federation of Investment Managers Malaysia (FIMM) 2013 Annual Reports*

## 1.2 Introduction to Malaysia Bond Market

Malaysia has developed the bond market significantly in terms of range of instruments, efficiency and market size. As a developing country, the Malaysia bond market development process is focus on the need to establish a well-diversified financial capital base, in order to meet the changing needs of the country's economy.

Over the years, Malaysian government has taken concerted measures to develop the bond market which resulted in significant growth of the bond market. This success has made Malaysian bond market being recognized as one of the fastest growing bond markets in Asia (Securities Commission, 2009).

The new financing pattern of the country emerged 30-years ago. Back in 1980s, Malaysia government has shifted the public policy to consolidate public sector activities. At the same time, Malaysia government has promoted the private sector as the engine of economy growth. This approach is well known as economy transformation, where the decline of public sector borrowing was compensated by an increase in financing by the private sector.

During the transformation periods, the private sector has relied on the banking system for its financing needs, of which a large portion was intermediated through the banking system. This was reflected in the high ratio of bank credit to gross domestic product (GDP) at 149% in year 1997. Meanwhile, bank deposits to GDP ratio also increased to 154% which allowed banks to offer more financing from their deposits base. Hence, it increased the banks loans to deposit ratio as well.

Malaysia bond market has established a new regulatory framework, with full disclosure based regulatory approach on 1 July 2000. Securities Commission became the sole regulator for the corporate bond market. This followed by the issuance of the Guidelines on the Offering of Private Debt Securities (PDS Guidelines) in 2003. To streamline the issuance processes for private debt securities, few other guidelines and regulations (i.e. Guidelines on Islamic Securities, Guidelines on the Offering of Asset-backed Securities) were subsequently produced.

Malaysia bond market has driven through the development process including:-

(i) Issuance process been rationalization;

(ii) Formation of trustworthy benchmark yield curve;

(iii) Issuer and investor base been broadening;

(iv) Increase liquidity in the capital market and

(v) Establishment of risk management based framework.

Malaysia recorded RM764 billion total bond issuance as at 31 December 2010. Total bond issuance is almost 97% of Malaysia GDP back in 2010. Out of RM764 billion, 45% is from government issuance, whereas 55% from private companies. Hence, it is a balance mix in bond market. Thus, it allow investors to choose whether to invest in government bonds or private debt securities base on investor's risk appetite, objective and risk-return trade off matrix.

As of today, Malaysia corporate bond including bank loans paper has around 25% out of total debt outstanding in bond capital market. It has a significant improved and growing compared with 1997, with around 10% out of total debt outstanding in bond capital market.

The fast growing in private debt securities was attributed to increase in private sector financing needs, mainly for infrastructure development such as project financing for building an independent power plant, highway, airport, construction and many more. Project financing generally require more long-term financing in order to support for long term project development and operating cost. Hence, private sector also helps to improve Malaysia economy from time to time.

According to RAM Rating Service Bhd in their December 2014 Monthly Bond Market and Rating Snapshot, the total issuance of Islamic corporate bond, which commonly name as "sukuk" is RM72 billion in 2012, exceed the total issuance of Conventional bond at RM48 billion. It seems investors prefer to invest in Islamic bond than Conventional bond. In order to meet the demand in the fixed income market, issuer prefers to issue an Islamic bond higher than Conventional bond. As a result, Malaysia was the highest international Sukuk issuer by issuing 69% of global's total sukuk issuance (Securities Commission, 2012). Total private debt securities market in 2014 raised total RM85.9 billion funds from Malaysia bond market, marginally lower than RM86 billion issued in year before attributed to Cagamas bonds and unrated private bonds placement that issued.

Figure 1.3
Historical Trend of Bond Issuances by Category (RM billion)

| Year | MGS/GII | Unrated Corporate Bonds | Rated Corporate Bonds | Unrated Government Guaranteed | Cagamas | Total Corporate Bonds |
|---|---|---|---|---|---|---|
| 2008 | 60.0 | 3.5 | 40.4 | 6.8 | 5.1 | 55.7 |
| 2009 | 88.5 | 7.5 | 31.4 | 13.9 | 8.3 | 61.0 |
| 2010 | 58.1 | 6.0 | 36.0 | 4.7 | 6.3 | 53.1 |
| 2011 | 93.3 | 5.2 | 47.6 | 15.0 | 2.8 | 70.6 |
| 2012 | 96.2 | 13.4 | 76.6 | 30.4 | 3.4 | 123.8 |
| 2013 | 92.5 | 12.3 | 52.4 | 13.6 | 7.9 | 86.2 |
| 2014 | 84.5 | 8.1 | 52.7 | 21.9 | 3.3 | 85.9 |

*Source: BPAM, MARC Fixed Income Research*

In Malaysia, the normal trading amount is RM5.00 million for one lot of Malaysia Treasury Bills and Private Debt Securities (PDS) in Malaysia. Market standard practice is settlement on two working days, (T+2). Besides, trading in fixed income market is quoted in yield-to-maturities, and confirmed by bond price in two decimal places.

As Malaysia is one of the investment free tax region country, hence no stamp duty and commission is payable on the bond purchased and sell. Nevertheless, investor is required to pay a brokerage fee if the transactions are take place through license money brokers.

## 1.3 Bond Funds

Generally, bond funds are considered to be less volatile than equities as they have diversified portfolio and received a steady stream of interest payments. Their portfolio would normally consist of various types of fixed income unit trust funds depending on:-

(i) Categories such as Conventional bond and Islamic bond,

(ii) Issuers such as from government and corporate, and

(iii) Structures which including a convertible bonds, stepped coupon bond, callable bonds, zero coupon bonds and guarantee bond.

Unit trust funds that established in Malaysia generally allow investors to sign up for automatically reinvestment on the fund's income distribution. Whenever a unit holder wants to redemption their units, the unit trust companies and fund's trustee will always facilitate the redemption through cancelation of units. Hence, investors could benefit from the flexibility to buy and sell according to their needs. There are a several reasons for investor to invest into bond funds, such as:

(i) Capital protection, depending on the fund;

(ii) Dividend income;

(iii) Diversification through a big pool of fund;

(iv) Easy to liquidate

In Malaysia, the minimum initial investment to invest into bond funds is RM1, 000. EPF also allow members to use their retirement fund from designated Account 1 to invest into EPF approved funds. Hence, members are allowed to invest up to 20% of

their excess of saving into the fund. The minimum amount to be withdrawn is RM1,000.

Bond fund investing mainly in debt instruments including private debt securities (PDS) or corporate bond; Malaysian government Securities (MGS); treasury bills; BNM bills; banker's acceptances; negotiable certificates of deposit; units in other bond funds; commercial paper and money market deposit.

Generally, bond funds are licensed and approval by Securities Commission with certain investment restrictions, permitted investments assets and some other parameters of investment including asset and geographical allocation. A bond fund must invest minimum 70% of its net asset value ("NAV") into fixed income instruments which include fixed income securities, money market instruments and deposits. As per Securities Commission guideline, the local Fund only can invest into these securities with minimum credit rating of at least "BBB3" or "P3".

Islamic bonds named as Sukuk (Arabic: صكوك). It is a legal financial instrument and deed, commonly known as Sakk, (Arabic: صك ). Islamic are forbidden to deal with companies that have business related to liquor, gambling, pork products and pornography. Hence, Islamic funds are not allowed to invest into these securities whereas majority of the revenue and profit are from these forbidden activities. Nevertheless, Islamic funds are allowed to invest into these companies that have a small portfolio of revenue from these prohibited activities.

In addition, interest bearing bonds like Conventional bonds are not permitted in Islam because it carried a fixed interest coupon payout. In order to comply with Islamic law, Islamic securities are constructed in such a way that it forbids the paying and charging of interest.

Generally, the issuer will let go some tangible assets such as highway, properties, power plant to the Sukuk bondholders in order to exchange for a fund from them. Hence, the profit (usually name as a rental) generated from these assets will transfer to Sukuk bondholders, which is allowed under Syariah principle.

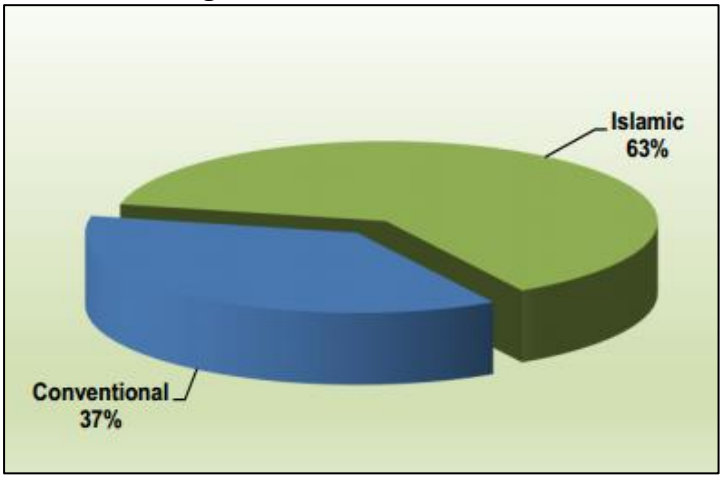
Besides, Sukuk also can arrange with different methods. Islamic bond establish partial ownership in an asset (Sukuk Al Ijara), financing (Sukuk Murabaha), commerce (Sukuk Al Musharaka), project (Sukuk Al Istisna), or investment (Sukuk Al Istithmar), whereas a Conventional bond undertaking in paying the loan as well as the fixed coupon.

The Islamic bond market experience fast development. Long term prospects for Islamic bond market remain robust, even though Islamic bond market issuances weakening in 2008 attributed to the subprime financial crisis. As of December 2012, global Islamic bonds outstanding rose more than USD231.4 billion. Islamic bond market is one of the fastest growing segments of the Islamic capital market.

Islamic Capital Market in Malaysia has growth at 13.6% per annum during the first Capital Market Masterplan, 2000 to 2010. The growth has been continued to reach RM1.42 trillion as at 31 December 2012, with annual growth rate increased to 16.3%. Market capitalization of Islamic-compliant companies and Islamic bond outstanding in Malaysia are growing at 11.5% and 22.2% yearly respectively over the last 10 years.

Malaysia has established a comprehensive islamic financial market framework, including wide range of Islamic products such as Islamic bond, Islamic funds, exchange traded fund (ETF), and real estate investment trusts (REITS). Moreover, Malaysia also well known as a home to lead Islamic fund management companies as well as Islamic stock broking companies.

Figure 1.4
PDS outstanding: Islamic and Conventional




*Source: MARC Fixed Income Research 2014*

## 1.4 Problem Statement

Malaysia has emerged as the largest Islamic securities or sukuk market in the world, with RM211 billion or 61.4% of all outstanding sukuk worldwide originating from Malaysia as at end-2008 (*Malaysia Debt Securities and Sukuk Market, 2009*). Sukuk are certificates of equal value that represent an undivided interest (proportional to the investor's interest) in the ownership of an underlying asset (both tangible and intangible), usufruct, services or investments in particular projects or special investment activities.

Through this concept, sukuk enjoy the benefit of being backed by assets, thereby affording the sukuk holder or investor a level of protection which may not be available from conventional debt securities. Furthermore, unlike conventional debt securities that mirror debts or loans on which interest is paid, sukuk can be structured based on innovative applications of Islamic principles and concepts.

As of end-2007, there were 134 Islamic unit trust funds in Malaysia. The size of the Islamic unit trust industry is still relatively small compared to the overall domestic industry; nonetheless it is the world's largest Islamic unit trust industry. The rising affluence of Muslim investors and expansion of Islamic capital market products will underpin the strong growth prospects in the future.

In line with the Malaysia government is keen to promote the growth of the Islamic financial market by given several incentives were offered to attract global players to establish Islamic fund management operations in Malaysia. Apart from tax incentives and the liberalisation of investment policies, Malaysia's Employees Provident Fund

will outsource RM7 billion of its funds for management by Islamic fund management companies.

The performance of Islamic and conventional unit trust as both unit trust funds are expected to have different return performance since Islamic unit trust are subject to both capital market rules and shariah principles while conventional unit trust subject only to the capital market rules. Unit trust funds are volatile in the capital market and factors such as the economic condition and the risk-return profile will affecting the performance of unit trust fund in the market.

Low (2007) used Jensen index, Henriksson and Merton's model to examine the 15 funds' performance. She concludes that bond funds generally have a better capital preservation and stable return over the long run period. Nevertheless, on average all type of unit trust funds, namely income fund, balance funds, and equity funds are generally lower return when compared with market benchmark.

Given the importance of Islamic bond funds as alternative investment choice for Malaysian investors, it is importance to assess its relative performance between the Islamic bond funds and Conventional bond funds. To the researcher's knowledge there is no document evidence from previous studies to compare conventional and Islamic bond fund performance especially in Malaysia. Therefore, this study fills the gap.

## 1.5 Research Questions

The research questions of the study are as follows:

1) Are there any performance differences between Islamic bond funds and Conventional bond funds?
2) Are there any risk differences between Islamic bond funds and Conventional bond funds?

## 1.6 Research Objectives

The main purpose of this study is to determine and compare the performance analysis on Islamic bond funds and Conventional bond funds in Malaysia from January 2011 to December 2014. The following specific research objectives are:

1) To compare and analysis the fund performance between Islamic bond funds and Conventional bond funds.
2) To compare and analysis the risk between Islamic bond funds and Conventional bond funds.

## 1.7 Significance of Study

The significance of the result for this study is as follows:

1. The findings of the study will enable investors to understand better and to select a right investment base on own risk appetite.
2. Besides, investor and fund manager can make use of this the findings in their portfolio rebalance during the downturn market into more defensive portfolio.

## 1.8 Scope and Limitations of the Study

There are some limitations on this study. The limitations are as follows:

1. This is the only 10 Islamic bond funds that researcher managed extracted from Morningstar® Data. Hence, the total 960 monthly returns of 20 bond funds, from 2011 to 2014 which including the dividend yield was collected from Morningstar® Data. The 20 bond funds consists only 10 Islamic bond funds and 10 Conventional bond funds. Hence, the samples size may not sufficient.
2. Some bond funds may have different asset allocation and geographical allocation in their mandate. Therefore, it may influence the sample return as well as risk element in which may cause some bias in the findings.

## 1.9 Organization of the Thesis

The research is organized into five chapters. Chapter one is an introduction of the background study and the brief explanation of the unit trust in Malaysia. This chapter also briefly explains bond funds, problem statements, and research questions, significance of the study, and scope and limitations of the study. Chapter two is a literature review. It provides theoretical theories and theories which has developed by scholars in order to explain return and risk in unit trust and chapter summary. Chapter three stated with introduction to the research methodology, follow by research design, data collection and sample selection, research method, hypotheses development and chapter summary. Chapter four provides an analysis of comparison performance between Islamic bond funds and Conventional bond funds and results of study. Finally, chapter five reports summary of results, draw conclusions and provide recommendations for future research.

# CHAPTER 2

# LITERATURE REVIEW

## 2.1 Introduction

A mutual fund or unit trust fund consists of a pool of funds collected from a group of investors with similar investment objectives. The fund will manage by a professional fund manager who is holding a Capital Markets Services Representative's License (CMSRL) from Securities Commission. Investors who have similar risk appetite, same investment objective as well as investment strategies will invest into one fund together (Choong, 2005).

An Islamic unit trusts fund mainly focuses on the investments in portfolios of "halal" investment instruments which fulfilled the Syariah principles. Islam forbids dealing with companies that have business related to liquor, gambling, pork products and pornography.

In 1995, the Securities Commission's Shariah Advisory Council (SAC) established the methodology to undertake Shariah screening process for listed companies. The methodology comprises quantitative and qualitative assessments. In view of the current development and sophistication of the Islamic finance industry, the screening methodology has now been revised by adopting a two-tier approach to the quantitative assessment which applies the business activity benchmarks and the newly-introduced financial ratio benchmarks while at the same time maintaining the qualitative assessment. This revision is in line with the Securities Commission's initiatives to further build scale in the Shariah-compliant equity and investment management

segments as well as expand the Islamic capital market's (ICM) international reach, as outlined in the Capital Market Masterplan 2.

This chapter discusses the background of this study and review the literature in order to develop hypotheses for this research. They are divided into few sections as below:

- Theoretical Review
- Literature Review on Portfolio Performance Measurement
- Literature Review of Bond Fund Performance
- Literature Review of Unit Trust Performance in Malaysia

## 2.2 Underlying Theory of Portfolio Risk and Return

Harry Markowitz (1952) introduced efficient frontier concept. He also proposed the Modern Portfolio Theory (MPT). It is a theory of finance that attempts to maximize portfolio expected return for a given amount of portfolio risk, or minimize the portfolio risk for a given level of expected return. These strategies can be achievable by cautiously selecting the sizes of various assets, weighted in percentage between the assets in one portfolio.

Every grouping of risky assets (excluding the risk-free assets such as Malaysia Government Securities) can be strategized in risk and return space, and the pool of all such possible portfolios defines a region in this space. The efficient frontier is a curve whereby it shows the occasion set that offers the highest possible return for a given level of risk.

MPT recommends that it is likely to construct an "efficient frontier" for portfolios. Hence, the portfolio can derive a highest return for a given level of minimum risk or vice versa. Moreover, the above theory also stated that it is insufficient to purely look at one individual stock risk and return. From a portfolio perspective, investor should look at the total portfolio risk and return. Hence, Harry Markowitz also explains that investor should invest more than one (1) security at all-time through diversify. Investors are advisable to spread out their investment into different asset classes as well as different stocks in one portfolio. Don't put all your eggs in one basket.

Example, SARS (severe acute respiratory syndrome) are spread out during November 2002 to July 2003, consumer will reduce consumption in chicken related foods, and hence share price of public listed companies that have correlation with chicken will suffer. On another side, healthcare and glove sectors will rebound because of demand are increase due to virus spread out. Hence, investor can benefit from diversification if he has exposure into KFC (Chicken Company) and Kossan (Glove Company), Topglove (Glove Company), IHH (Healthcare Company) and many more.

MPT assumes the asset return is normally distribution, market is efficient and investors are rational. It describes standard deviation of return as a portfolio risk. Each underlying assets or securities within the portfolio will segregate in weighted by using market value divide the total portfolio value. Hence, the return of portfolio is weighted sum of the individual assets' returns. By investing into two or more securities that less correlation between each other's, Harry Markowitz says it can moderate the total risk of the portfolio in the same time upholding a high expected return.

Standard deviation, R-squared, Beta, Sharpe ratio and Jensen alpha are the five statistical risk measurements in Modern Portfolio Theory. These five statistical measurements are very useful to determine and analysis a portfolio risk and return. Hence, investors are able to construct a portfolio that can maximize portfolio return based on a given risk level Reilly and Brown (2009).

Markowitz's efficient frontier is a finance theory that attempts to maximize portfolio expected return for a given amount of portfolio risk, or minimize the portfolio risk for a given level of expected return (Reilly & Brown, 2009). These strategies can be achievable by cautiously selecting the sizes of various assets, weighted in percentage between the assets in one portfolio. The basis for modern portfolio theory is Markowitz's Efficient Frontier.

Generally, investors are risk averse. They want highest possible return with lowest possible of risk. These strategies can be achievable by cautiously selecting the sizes of various assets, weighted in percentage between the assets in one portfolio.

The Capital Asset Pricing Model (CAPM) was introduced by Jack Treynor (1961), William F. Sharpe (1964), John Lintner (1965) and Jan Mossin (1966). The CAPM is an extension of the Markowitz theory. The CAPM further covers the concept of ideal diversified portfolio.

Beside, Capital Asset Pricing Model (CAPM) also explains the connection between expected return and risk. High risk, high return and low risk, low return. Hence, investor may achieve higher return by investing into risky assets and vice versa.

Furthermore, one can use CAPM to calculate the expectation return for investing into one risky asset base on the asset's standard deviation. The CAPM formula is:

$R_a = R_f + B_a (R_m - R_f)$

Where:
$R_a$ = The broad market's expected rate of return
$R_f$ = The rate of return for a risk-free security
$B_a$ = Beta of the asset

Security Market Line (SML) is a line that charts between beta versus portfolio return. Beta is a systematic risk, also known as market risk. The SML fundamentally charts the results from the capital asset pricing model (CAPM).

The y-axis represents the expected return and the x-axis represents the beta (risk). The slope of the SML represent market risk premium. The security market line can be used to determine whether an asset being shall consider for a portfolio base on expectation return and risk. A security below SML is considered undervalue, hence investors should invest into the stock. Similarly, if a security is above the SML line, it is considered overvalue. Therefore, investor should sell that security as soon as possible.

Besides Security Market Line (SML), CAPM also introduce Capital Market Line (CML). CML is a line used to show a relationship between a portfolio risks (standard deviation) versus the rates of return for a portfolio depending on the risk-free rate of return. The calculation for the Capital Market Line (CML) is constructed on the formula for a straight line (Mayo, 2003).

The calculation for the security market line is:

$Y = a + bX$

Where:
Y = Return of portfolio ($R_p$)
a = The intercept become the risk-free rate ($R_f$)
b = Become the slope of the line
X = Risk premium.

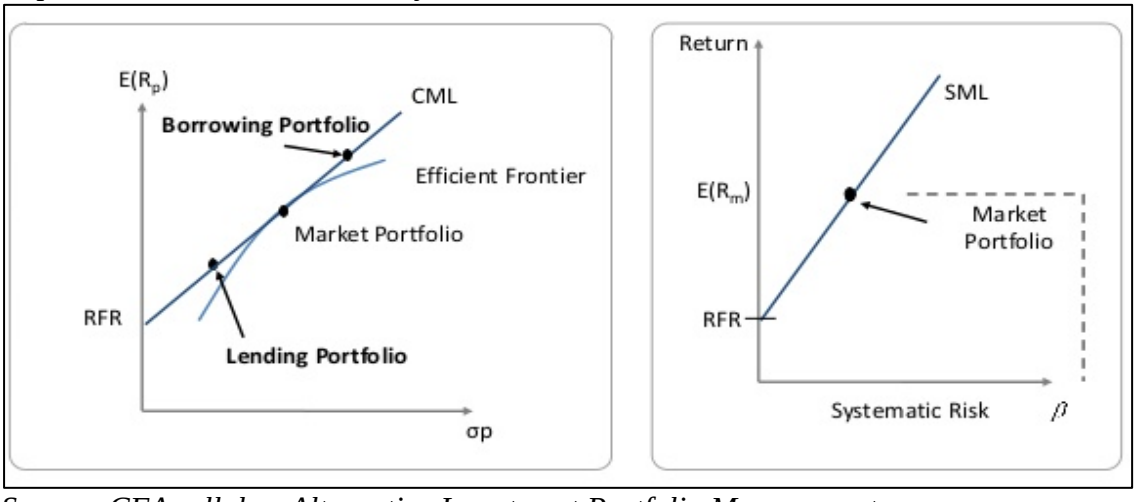
The calculation for the capital market line is:

$R_p = R_f + ( R_m - R_f) / SD_m$

where:
$R_p$ = Return on a portfolio
$R_f$ = Risk free asset
$R_m - R_f$ = Risk Premium that depends on the extent of the return on the market exceeds the
$SD_m$ = Standard Deviation of market return

Although Capital Market Line (CML) looks similar when compared with Security Market Line (SML), however both market lines are difference. Standard deviation is using as a risk measurement in CML. Beta coefficient is use as a risk measurement in SML.

Figure 2.1
Capital Market Line and Security Market Line




*Source: CFA syllabus Alternative Investment Portfolio Management*

Portfolio theory explained risk can be calculated by using a standard deviation of return, under a normal return distribution. Normal return distribution is frequently found in share market study. Given sufficient observations within a sample size, it is realistic to make the hypothesis that investment returns likely follow a normally distributed pattern.

Investors generally are risk averse. They want a highest return with the lowest risk (standard deviation) of return. Generally, high risk tends to generate higher return and vice versa.. That is the basis of risk and return trade off. Hence, risk will be increase slightly when an investment can derive additional return to the portfolio. Similarly, if investor adds in more defensive investment assets into their portfolio, the return from the defensive assets will reduce the portfolio's risk as well as the portfolio return. Investment into risk free assets considers no risk, yet most of the risk frees assets likely to generate a low return.

According to the risk-return tradeoff, one must be mindful of our personal risk appetite in selecting the investment that suit or investment objective. As a substitute, one should find a suitable investment that can generate return on investment and able to sleep well at night. The possibility for one to get higher or lower return compared with average market return is due to the investment vehicle's standard deviation (Ross, Westerfield & Jaffe, 2010).

Total return is comprised of dividend yield plus capital gain. Dividend yield is including a dividend paid to shareholder and interest receives from coupon payment

from private debt securities. Capital gain represents the market price of securities above the cost price. Total return usually expressed as a percentage.

The return on the investor portfolio, designated $R_p$, is given by:

$R_p = ( V_1 – V_0 + D ) / V_0$

Where:
$R_p$ = return on investment
$V_1$= market value at the end of period.
$V_0$= market value at the beginning of period.
D = the dividend distributions during the period

Risk is the likelihood of losing something of value. Value can be something from social status, emotional, financial wealth as well as physical health (Holton, Glyn A, 2004). Uncertainly is a risk. In this research, we are more concerned on the portfolio risk. Portfolio risk can segregate into (i) unsystematic risk and (ii) systematic risk. By adding more securities into one portfolio, it can reduce and diversified the unsystematic risk. Meanwhile, systematic risk is non-diversified risk due to market unexpected movement such as financial crisis, Consumer Price index (CPI), Gross Domestic Product (GDP), Producer Price Index (PPI), interest rate movement and inflation rate.

Standard deviation is frequently used to measure a mutual fund's risk. It is a volatility measurement of a fund. The standard deviation of a fund measures this risk by measuring the degree to which the fund fluctuates in relation to it's the average return of a fund over a period of time.

The formula of standard deviation is:

$$s^2 = \frac{\sum_{t=1}^{T} \left(R_t - \overline{R}\right)^2}{T-1}$$

$$s = \sqrt{s^2}$$

Where:
S = standard deviation
R = the portfolio market value at the end of interval.
R bar = means of all value in the data set
T = number of value in the data set

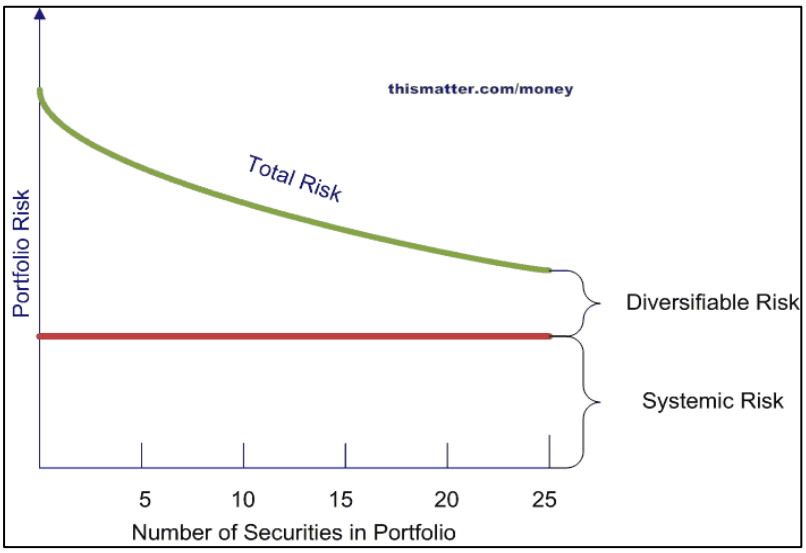
Diversification is a risk management technique that combines a wide variety of investments assets within a portfolio. The foundation of this technique explains that portfolio can achieve a higher return as well as lower risk when compared with any individual investment within the portfolio. Unit trust investment pools the fund from several of investors with similar objective and invests into difference assets classes' based on Fund's Deed and permitted investment. Hence, the unit trust investment also applied the same risk management technique.

Markowitz introduced the concept of portfolio diversification. Besides, he also introduces total risk, which is also known as standard deviation of mean return of single security is diversifiable.

Unsystematic risk can reduce through portfolio diversification. Poor performance stocks can neutralize with best performance stocks. Thus, diversification can only benefit for these securities are not positive correlated between each other's. A portfolio of 25 to 30 stocks will derive the most cost-effective level of portfolio

diversification, risk reduction based on studies and mathematical models. On another hand, investing more than 30 stocks tend to enjoy smaller rate in diversification.

Figure 2.2
Portfolio risk and number of securities




*Source: Financial Management Concepts and Applications, 2014*

Portfolio volatility can measure by using Beta. A beta of 1 indicates that the security's price will move along with the market. Beta less than 1 indicates that the portfolio movement will be less volatile than the market. Similar, beta of greater than 1 indicates that the portfolio's price will be more risky than the market. Total risk is comprised of unsystematic risks and systematic risks. Unsystematic risks can be diversified when a portfolio invest into 25-30 stocks. Hence, the portfolio risk leaves systematic risk, which known as beta coefficient. Beta coefficient is a sensitivity measurement of a security price to the market movement. Hence, beta coefficient is a significant contribution in capital asset pricing model (CAPM) to calculate the target return on a stock.

The formula of beta coefficient is:

Beta = Covariance of Market Return with Stock Returns / Variance of Market Return

Coefficient of variation (CoV) is a "standardized measure of dispersion of a probability distribution". CoV is calculated by dividing the standard deviation by the expected mean return. It is reported as a percentage.

The formula of Coefficient of variation is:

Coefficient of variation = Standard Deviation / Expected Return

## 2.3 Portfolio Performance Measurement

Treynor and Mazuy (1996) have examined 57-unit trust funds from 1953 to 1962 on the fund performance for 10 years. Result shown that out of 57 unit trust funds, 56-unit trust fund have low correlation with market performance. Thus, capability to read market correctly and securities selection are factors contributed to an alpha return.

Besides, Sharpe (1996) has examined 34 of United States mutual funds from 1954 to 1963. His research presented generally unit trust fund are hardly to beat the market benchmark. Result shown that 23 out of 34 mutual funds examined by Sharpe fail to achieve a higher Sharpe index than Dow Jones Industrial Average, market benchmark for United States. Therefore, he suggested that a unit trust fund generally do not select based on investor's return and risk appetite. Besides, Sharpe also comments that the fund manager usually control the fund's risk and try to achieve an expected return. Therefore, they will try to encourage their client to invest into the fund that they managed based on the above risk and expectation return. Moreover, he also examined a test on the fund performance consistency check by running through Spearman Rank Correlation. The results showed that correlation of these 34 United States mutual funds was low, at 0.36.

In the meantime, Jensen introduced a performance measure named Jensen's Alpha. This measurement can use to measure a fund manager whether they can deliver to achieve an alpha return on the mutual fund. Jensen (1968) examined 115 United States mutual funds. He obtains the monthly performance of these funds from 1945 to 1964. His studies explained that mutual funds are generally underperformed when

compared with market return attributed to high brokerage and commissions in securities trading.

Taib and Isa (2007) examined 110 mutual funds that consist of Equity funds, bond funds and balance funds' performance in Malaysia from 1990 to 2001. The funds performances are measured by adjusted return, non-adjusted return, adjusted Jensen's alpha, adjusted Sharpe Index, Treynor Index, Jensen's alpha and Sharpe Index. The research found out that fixed income funds have better performance compared with the equity fund and balance fund attributed to increase in interest rate during the period of studies. Moreover, Taib and Isa also explained that unit trust funds returns are no persistence in performance. Hence, they suggest past performance of mutual fund do not have relationship with the current performance. As such, investor should not invest into the unit trust fund based on the past performance of these funds.

## 2.4 Bond Fund Performance

Cornell and Green (1991) examined the monthly return of high-grade bond funds and junk bond funds from two difference samples period, (i) 1960-1967 and (ii) 1977-1989. The results shown these two bond funds have similar return over the long run period.

Elton (1993) introduces relative pricing models constructed on the Arbitrage Pricing Theory. Arbitrage Pricing Theory was introduced by Ross (1976). Several indices and economic data as independent variables that contributed to bond funds returns had examined by Elton et.al. (1995). His study shown that (i) market return are important to determine fixed income fund performance; and (ii) economic data is a one of the significant factor that contributed to the fund's alpha return.

Kahn and Rudd (1995) study the perseverance of the equity funds and bond funds performance, from October 1988 to September 1993. The research explained that bond funds are more persistence compared to equity funds. However, bond funds tend to underperform when compared with equity funds due to higher expenses and fees charge on bond funds.

Swinkels and Rzezniczak (2009) examined the monthly performance of bond funds, over the period of 2000 to 2007 that investing in Polish county. To ensure transparency, Swinkels and Rzezniczak used Polish government bond as measurement to market benchmark. The paper displayed that all fixed income funds are better than 3-months Polish deposit rate, with four have a higher Sharpe ratio than Polish

government bond yield. Furthermore, the result shows that bond funds have achieved an alpha return in the comparison.

## 2.5 Unit Trust Performance in Malaysia

Annuar et al. (1997) examined 31 mutual funds' performance that established in Malaysia from two perspectives namely, market timing and selectivity by using Mazuy model and Treynor index respectively. The paper shown 31 unit trusts from July 1990 to August 1995 have positive relationship between market timing and selectivity. Besides, the paper also explained that generally unit trust funds did not achieve the fund's objective attributed to low diversification.

Shamsher et al. (2000) examines 41 actively and passively managed unit trust funds in Malaysia from 1995-1999 by using Sharpe, Jensen and Treynor method. The paper concludes that passively managed funds have similar return with actively managed funds. Both funds generally underperformed compared with KLCI (Kuala Lumpur Composite Index) as market benchmark attributed to poor market timing, stock selection and low diversification.

Soo-Wah (2007) studies 40 Malaysia unit trusts with monthly return from 1996-2000 on the funds selectivity and market timing. The paper used Jensen and Merton's model. Soo-Wah concludes that generally unit trust funds returns are lower than market benchmark, KLCI and EMAS Index attributed to the fund manager's poor market timing as well as stock selection.

Abdullah et al. (2007) studies the performance comparison between Syariah mutual funds and Conventional mutual funds with adjusted Sharpe index, market timing, funds selectivity and Sharpe index. The paper concludes that Syariah mutual funds are better than conventional funds during the market downturn and vice versa. In additional, this paper recommended that investors should invest and switch into Syariah funds during the uncertainty time for minimize the losses.

Low (2007) used Jensen index, Henriksson and Merton's model to examine 15 funds' performance. She concludes that bond funds generally have a better capital preservation and stable return over the long run period. Nevertheless, on average all type of unit trust funds, namely income fund, balance funds, and equity funds are generally lower return when compared with market benchmark.

Chua (1985) illustrates that market return underperform unit trust funds outperform from 1974 to 1984. This is in difference to Taib and Isa's (2007) finding attributed to different analysis method, sample size and time period. Besides, Chua also highlighted that government-sponsored funds have better return compared with private funds as they are backed by the Malaysia government and hence, slightly low risk.

Besides, Rozali and Abdullah (2006) examine the performance of equities funds that established in Malaysia from 1995 to 2004. The research concludes that equity funds tend to have a higher return compared with the market benchmark. Nonetheless, there is similar performance among the other type of equities funds.

Abdullah and Abdullah (2009) have the similar result, on their performance measure with 26-local funds compared with 23-foreign funds from 2004-2008 and 2005-2008. The research used Jensen, Sharpe and Treynor. Risk-adjusted return, Sharpe shown that local funds return are similar with foreign funds return.

## 2.6 Chapter Summary

This chapter also briefly explains some text of a scholarly paper, which including practical findings, theoretical and methodological that used to explain return and risk in unit trust. Section 2.1 is an introduction of literature Review. In the Section 2.2, we have briefly explained theoretical review which includes (i) Modern Portfolio Theory, (ii) Markowitz's Efficient Frontier, (iii) Capital Asset Pricing Model, (iv) Return on Investment, Risk and Diversification and (v) Beta and Coefficient of Variation. Generally, high risk tends to have high return and vice versa. Thereafter, we move on to Section 2.3 which briefly explained literature review on portfolio performance measurement. The chapter continues with literature review of bond fund performance in Section 2.4, literature Review of Unit Trust performance in Section 2.5 and end with chapter summary in Section 2.6.

# CHAPTER 3

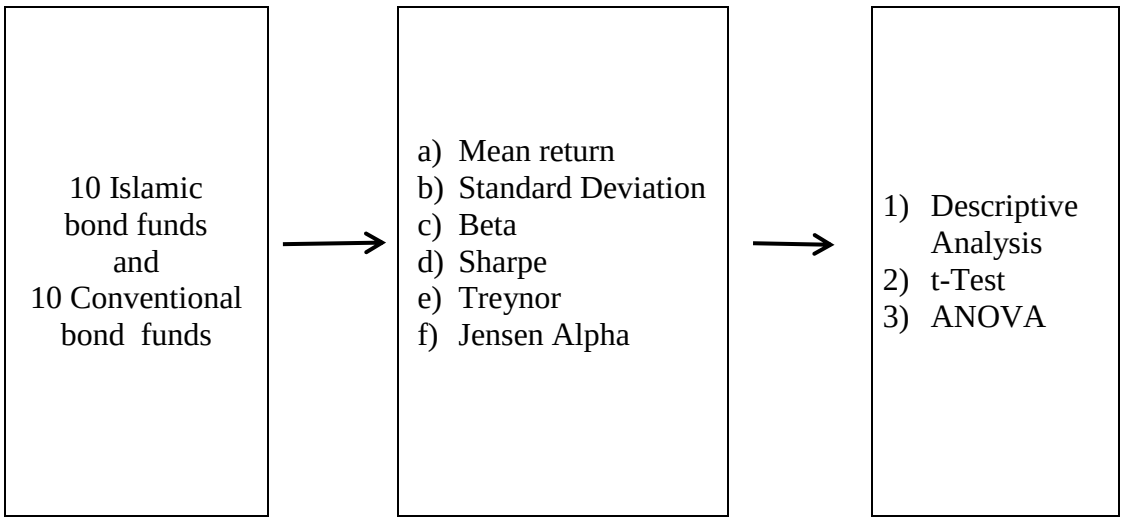
# METHODOLOGY

## 3.1 Introduction

This chapter elaborates on the methodology used in this study. Starting with the discussion on the research design in Section 3.2, then data collection and sample selection in Section 3.3, following by demonstration of data analysis approach in Section 3.4. The chapter continues with Hypothesis Development in Section 3.5 and end with chapter summary in Section 3.6.

## 3.2 Research Design

This section explained the research method and research design used to examine the performance analysis on Islamic bond fund and Conventional bond fund from risk and return perspective.



## 3.3 Data Collection and Sample Selection

The total monthly returns of 20 bond funds, which include the dividend yield, were collected from Morningstar® Data. Out of the 20 bond funds, being 10 Islamic bond funds (refer to Table 3.1) and 10 Conventional bond funds (refer to Table 3.2). The performance of both 10 Islamic and 10 Conventional funds were examined over a period of 48 months commencing from January 2011 to December 2014; with total 960 monthly returns were collected from the total 20 bond funds.

To the researcher's knowledge there is no document evidence from previous studies to compare conventional bond fund and Islamic bond fund performance in Malaysia by using the monthly return with above period of studies. Besides, the consideration of using monthly performance is made due to because of the time interval availability of RAM Quant Shop MGS Bond All TR.

In this research, the fund performances are examined by using six performance measures namely mean return, standard deviation, beta, Treynor index, Sharpe index and Jensen index. By using the risk-adjusted performance, investors can use this to evaluate the respective performance of the various funds compared to the risk taken by the fund managers to choose the right option for their own investment base on their risk appetite.

To complete this research, this paper has used Malaysia Government Securities 2015 (MGS/2015) and RAM Quant Shop MGS Bond All TR as proxies for market risk free and fixed income benchmark, respectively. Malaysian Government Securities (MGS) is an interest bearing long-term bonds issued by the Government of Malaysia with an

original maturity of more than one year. Whereas. Malaysian Treasury Bills (MTB) is a short-term securities issued by the Government of Malaysia with original maturity of less than one year. Therefore, the considerations of using MGS/2015 as the risk-free benchmark is taken due to bond fund investors generally have a long-term investment horizon.

This research used MGS with 2015 maturities as a benchmarking for risk-free rate. There are a four MGS/2015 with difference month maturities in 2015. Hence, to be prudent and precise, this research used average last closing yield across all the MGS/2015 from Bond Pricing Agency Malaysia as a benchmarking of risk free rate for overall fixed income unit trust performance comparison (as shown in Table 3.3). The average last closing yield is taken as of 31 December 2014. This research examine the period of study until December 2014, therefore to the researcher's knowledge it is better to use 1-year forward MGS which is MGS/2015 instead of others MGS maturities as a benchmarking for risk-free rate.

MGS/2015, this rate is converted to a monthly equivalent, consistent with the monthly returns of the bond funds and the market's returns. The study follows the estimation of monthly equivalents of the annualized yield as a geometric mean by Soo-Wah (2007), that is:

$( 1 + \text{Annualised Yield})^{(1/12)} - 1$

Table 3.1
10 Islamic Bond Funds Inception Dates, Fund Size, Benchmark, and Years to Date

| No | Fund Name | Inception Date | Fund Size (RM mil) | Benchmark | Years to Date |
|---|---|---|---|---|---|
| 1 | CIMB Islamic Enhanced SUKUK | 23/02/2005 | 54.26 | CIMB Islamic 1-M GIA | 10 |
| 2 | CIMB Islamic SUKUK | 08/10/2004 | 95.56 | Quantshop GII Medium | 11 |
| 3 | Libra AsnitaBond Fund | 18/03/2005 | 83.11 | 6-M Maybank GIA rate | 10 |
| 4 | PB Islamic Bond | 16/03/2006 | 293.11 | 12-M GIA rate | 9 |
| 5 | Public Islamic Bond | 15/08/2001 | 565.45 | Maybank 12-M GIA rate | 14 |
| 6 | Public Islamic Enhanced Bond | 28/11/2006 | 78.43 | 12 M GIA rate | 9 |
| 7 | Public Islamic Select Bond | 10/07/2007 | 218.27 | 12-M GIA rate | 8 |
| 8 | Public Islamic Infrastructure Bond | 16/11/2010 | 155.81 | 12-M GIA rate | 5 |
| 9 | Public Islamic Strategic Bond | 30/12/2010 | 252.17 | 12-M GIA rate | 5 |
| 10 | RHB-OSK Islamic Bond | 25/08/2000 | 42.67 | Maybank 12-M GIA rate | 15 |
| **Average** | | | **183.88** | | **9.60** |

**Fund size as at 31 December 2014*

Table 3.2
10 Conventional Bond Funds Inception Dates, Fund Size, Benchmark, and Years to Date

| No | Fund Name | Inception Date | Fund Size (RM mil) | Benchmark | Years to Date |
|---|---|---|---|---|---|
| 1 | Affin Hwang Bond | 12/12/2001 | 28.14 | Maybank 12-M FD | 14 |
| 2 | AmDynamic Bond | 16/09/2003 | 135.23 | RAM Quant Shop MGS | 12 |
| 3 | AMB Enhanced Bond Trust | 27/05/2003 | 12.34 | RAM Quant Shop MGS | 12 |
| 4 | CIMB-Principal Bond | 15/11/1995 | 274.58 | RAM Quant Shop MGS | 20 |
| 5 | Eastspring Investments Bond | 29/05/2001 | 162.86 | RAM Quant Shop MGS | 14 |
| 6 | Hong Leong Bond | 29/01/2002 | 80.62 | RAM Quant Shop MGS | 13 |
| 7 | Kenanga Bond | 15/08/2002 | 14.32 | Maybank 12-M FD | 13 |
| 8 | Manulife Investment Bond | 18/02/2002 | 111.74 | 5-Yr MGS | 13 |
| 9 | Public Bond | 11/06/1996 | 1,129.95 | Maybank 12-M FD | 19 |
| 10 | RHB-OSK Bond Fund | 10/10/1997 | 48.92 | Maybank 12-M FD | 18 |
| **Average** | | | **199.87** | | **14.80** |

**Fund size as at 31 December 2014*

Table 3.3
Overall MGS/2015 yield from Bond Pricing Agency Malaysia

| No | Bond Code | ISIN Code | MGS Name | MTM Yield |
|---|---|---|---|---|
| 1 | MJ090004 | MYBMJ0900047 | MGS 4/2009 3.741% 27.02.2015 | 3.28 |
| 2 | MJ100001 | MYBMJ1000011 | MGS 1/2010 3.835% 12.08.2015 | 3.35 |
| 3 | MO05002S | MYBMO05002S9 | MGS 2/2005 4.720% 30.09.2015 | 3.38 |
| 4 | MH120003 | MYBMH1200037 | MGS 3/2012 3.197% 15.10.2015 | 3.39 |
| Average 31.12.2015 MGS/2015 closing yield | | | | 3.35 |

RAM Quant Shop MGS Bond All TR (total return) is used as a proxy of market return for overall fixed income unit trust in the performance analysis in Malaysia. RAM quant shop MGS Bond Index was introduced back in February 1998 as a monthly index. The index has included the MGS, Khazanah and Cagamas into monthly return calculation. Hence, it is widely recognized by market participants including local and foreign fund managers and investors as a fixed income market return benchmark. For example, CIMB-Principal Bond Fund and Kenanga Diversified Fund are using RAM Quantshop MGS Bond Index as their fund's benchmarking. Both funds are under fixed income categories, approved by Securities Commission.

## 3.4 Unit Trust Performance Measures

The performance of a unit trust fund relative to its risk. One may compare its performance to the performance of the market as a whole or relative to investments with similar levels of risk. In this research, there are three risk-adjusted performance measures namely (i) Sharpe, (ii) Treynor, and (iii) Jensen are calculated from samples chosen.

Sharpe (1966) suggested standard deviation, as a risk measurement in reward-to-risk

ratio instead of systematic risk (beta). Beta measures the risk of the market as a whole, while standard deviation measures the risk of individual stocks. Moreover, beta measures the market risk premium, while standard deviation measures risk. In addition, beta measures the risk investors are compensated for, while standard deviation measures the total risk which included both systematic and unsystematic risk. Sharpe ratio evaluates the performance of a portfolio based on the total risk of a portfolio. Besides, Sharpe ratio also used to measures the excess return generated by a portfolio over the risk free rate in relation to the total risk or standard deviation of a portfolio.

Sharpe ratio is a good indication and always used as a performance comparison when combined with portfolio return (Reilly & Brown, 2009). To achieve a higher Sharpe ratio, a portfolio should able to generate higher return compared with benchmark as well as to maintain a low risk tolerance. The Sharpe ratio used standard deviation to calculate total risk; while Treynor ratio only used Beta to evaluate systematic risk. The best portfolio is not necessarily the one with the highest return. Instead, it's the one with the most superior risk-adjusted return. Hence, higher the Sharpe ratio, better is the fund and vice versa.

The Sharpe ratio can be calculated as follows:

Sharpe Ratio= $(R_p - R_f) / s$

Where,
$R_p$ = Return on mutual fund
$R_f$ = Risk free rate
s = Standard deviation of the mutual fund

The second measurement is Treynor ratio. Treynor ratio is a risk-adjusted measure of return based on systematic risk. Treynor ratio uses beta as the measurement of volatility. The Treynor ratio is quite similar to the Sharpe ratio except for risk evaluated. Treynor's objective is to find a performance measure that could apply to all investors, regardless of their personal risk preferences.

Moreover, Treynor also introduced the concept of the security market line (SML), which defines the relationship between portfolio returns and market rates of returns, whereby the slope of the line, beta, measures the relative volatility between the portfolio and the market.

As such, the beta coefficient is simply the volatility measure of a stock portfolio to the market itself. The greater the line's slope, the better the risk-return tradeoff. The *Treynor ratio* formula is:

Treynor Ratio = $(R_p - R_f) / B_i$

Where,
$R_p$ = Return on mutual fund
$R_f$ = Market risk free rate
$B_i$ = Beta of the unit trust fund over

The second measurement is Jensen. Jensen (1968) introduces the capital asset pricing model (CAPM) which is a model that describes the relationship between risk and expected return and that is used in the pricing of risky securities. Jensen index is used to examine the abnormal return of mutual fund over the theoretical expected return. The market model uses statistical methods to predict the appropriate risk-adjusted return of an asset.

The Jensen ratio can be calculated as follows:

Jensen alpha $= R_p - [ R_f + B_i (R_m - R_f) ]$

Where,
$R_p$ = Return on mutual fund
$R_f$ = Risk free rate
$R_m$ = Market return
$B_i$ = Beta of the unit trust fund over market return

Monthly return on RAM Quant Shop MGS Bond All TR and Malaysia Government Securities-2015 (MGS/2015) are used as a proxy of market return and risk-free rate for overall bond fund performance analysis. To answer objective 1 and 2 in this research, t-Test with Two-Sample Assuming Unequal Variances and ANOVA are performed as both samples data are independents with difference variances.

## 3.5 Hypothesis Development

Abdullah et al. (2007) studied the performance comparison between Syariah mutual funds and Conventional mutual funds with adjusted Sharpe index, market timing, funds selectivity and Sharpe index. The paper concludes that Syariah mutual funds are better than conventional funds during the market downturn and vice versa. In addition, this paper recommended that investors should invest and switch into Syariah funds during the uncertainty time for minimize the losses.

H1: There is a difference between Average Means Returns of Islamic bond fund and Conventional bond fund

Kahn and Rudd (1995) study the perseverance of the equity funds and bond funds performance, from October 1988 to September 1993. The research explained that bond funds are more perseverance compared to equity funds. However, bond funds tend to underperform when compared with equity funds due to higher expenses and fees charged on bond funds.

H2: There is a difference between risk of Islamic bond fund and Conventional bond Fund

## 3.6 Chapter Summary

This chapter also briefly explains the research methodology which covers introduction in Section 3.1. It briefly explains the research design in Section 3.2; data collection and sample selection in Section 3.3; demonstration of data analysis approach in Section 3.4 and hypothesis development in Section 3.5. This chapter ends with Chapter summary in Section 3.6.

# CHAPTER 4

# ANALYSIS OF FINDINGS

## 4.1 Introduction

This chapter provides the investigation and findings of the study. The performance of 10 Islamic bond funds and 10 Conventional bond funds, with total 960 monthly returns were collected from January 2011 to December 2014. This research using three methods to analysis and explain the findings namely (1) descriptive analysis; (2) t-Test with Two-Sample Assuming Unequal Variances is executed as both samples data are assumed independents with difference variances; and (3) Single factor ANOVA.

In this research, the fund performances are evaluated by using six performance measures namely mean return, standard deviation, beta, Treynor index, Sharpe index and Jensen index. The performance of all 20 bond funds are compared to the market benchmark using RAM Quant Shop MGS Bond All TR and risk-free rate using MGS/2015 to examine the six performance measures, determine whether the funds are outperform the market benchmark in term of return and risk, and analysis the fund's risk and return between Islamic bond funds and Conventional bond funds.

## 4.2 Results of the Study

Table 4.1 indicates the monthly return, standard deviation and performance measurement for Islamic bond funds. Table 4.2 provides the monthly return, standard deviation and performance measurement for Conventional Unit Trust Funds.

Table 4.1:
Descriptive Statistics of Monthly Performance Measurement for Islamic bond funds from January 2011- December 2014

| Fund Name | Mean (%) | SD (%) | Sharpe | Beta | Treynor | Jensen |
|---|---|---|---|---|---|---|
| CIMB Islamic Enhanced SUKUK | 0.3631 | 0.6211 | 0.1421 | 0.2851 | 0.3096 | 0.0862 |
| CIMB Islamic SUKUK | 0.3525 | 0.4260 | 0.1822 | 0.3444 | 0.2253 | 0.0751 |
| Libra AsnitaBond Fund | 0.4044 | 0.2956 | 0.4383 | 0.2601 | 0.4981 | 0.1277 |
| PB Islamic Bond | 0.4533 | 0.3834 | 0.4653 | 0.3341 | 0.5339 | 0.1759 |
| Public Islamic Bond | 0.3828 | 0.3230 | 0.3343 | 0.2432 | 0.4440 | 0.1062 |
| Public Islamic Enhanced Bond | 0.3664 | 0.5148 | 0.1778 | 0.2518 | 0.3634 | 0.0897 |
| Public Islamic Select Bond | 0.3240 | 0.2004 | 0.2453 | 0.1853 | 0.2654 | 0.0478 |
| Public Islamic Infrastructure Bond | 0.3457 | 0.3649 | 0.1940 | 0.2562 | 0.2763 | 0.0689 |
| Public Islamic Strategic Bond | 0.3417 | 0.2706 | 0.2468 | 0.2423 | 0.2756 | 0.0650 |
| RHB-OSK Islamic Bond | 0.6473 | 1.8554 | 0.2007 | 0.2790 | 1.3349 | 0.3704 |
| **Average** | **0.3981** | **0.5255** | **0.2627** | **0.2682** | **0.4526** | **0.1213** |
| Risk Free (MGS/2015) | 0.2749 | 0.0000 | 0.0000 | 1.0000 | 0.0000 | 0.0000 |
| Benchmark: RAM Quant Shop MGS Bond All TR | 0.2822 | 0.5832 | 0.0125 | 1.0000 | 0.0073 | 0.0000 |

Table 4.1 indicates the monthly return, standard deviation and performance measurement for Islamic bond funds. This paper has used MGS/2015 and RAM Quant Shop MGS Bond All TR as a proxy for market risk free and fixed income benchmark respectively.

The Islamic bond funds monthly average returns over 48 months range from 0.3240% to 0.6473%. The overall monthly average for the 10 funds is 0.3981%, compared to the RAM Quant and MGS/2015 at 0.2822% and 0.2749% respectively. This indicates that the 10 Islamic bond funds are generally outperformed when compared with

market benchmark, and risk free rate. The best Islamic bond fund in monthly mean return is RHB-OSK Islamic Bond with average monthly return at 0.6473%.

The fund's average monthly standard deviation stood at 0.5255%, which are lower than the market benchmark, 0.5832%. The most volatile Islamic bond fund is RHB-OSK Islamic Bond, which is 1.8554%. Meanwhile, the least risky Islamic bond fund is Public Islamic Select Bond with monthly standard deviation of 0.2004%.

The funds' average Beta stood at 0.2682; ranging from 0.1853 to 0.3444. It shows that the fluctuation in bond market returns have a very low impact on the movement of Islamic bond funds.

On performance returns comparison in Sharpe, Treynor and Jensen Alpha, Islamic bond funds typically achieved 0.2627, 0.4526 and 0.1213 respectively; which are better than the market benchmark, 0.0125 0.0073 and 0.0000 respectively. This indicates that the Islamic bond fund perform much better after factor in the risk adjusted element. The fund with the highest Sharpe measure of 0.4653 is PB Islamic Bond. Meanwhile, RHB-OSK Islamic Bond achieved the highest Treynor (1.3349) and Jenson (0.3704) measurement.

Table 4.2
Descriptive Statistics of Monthly Performance Measurement for Conventional bond funds from January 2011- December 2014

| Fund Name | Mean (%) | SD (%) | Sharpe | Beta | Treynor | Jensen |
|---|---|---|---|---|---|---|
| Affin Hwang Bond | 0.3041 | 0.5283 | 0.0554 | 0.2433 | 0.1202 | 0.0275 |
| AmDynamic Bond | 0.4740 | 0.6313 | 0.3155 | 0.3779 | 0.5269 | 0.1964 |
| AMB Enhanced Bond Trust | 0.3559 | 0.3847 | 0.2106 | 0.1608 | 0.5040 | 0.0798 |
| CIMB-Principal Bond | 0.3378 | 0.2401 | 0.2621 | 0.1843 | 0.3416 | 0.0616 |
| Eastspring Investments Bond | 0.4417 | 0.3345 | 0.4987 | 0.2284 | 0.7302 | 0.1651 |
| Hong Leong Bond | 0.3046 | 0.3381 | 0.0878 | 0.2271 | 0.1307 | 0.0280 |
| Kenanga Bond | 0.2360 | 0.2940 | -0.1323 | 0.3400 | -0.1144 | -0.0414 |
| Manulife Investment Bond | 0.3285 | 0.7531 | 0.0712 | 0.1915 | 0.2802 | 0.0523 |
| Public Bond | 0.3989 | 0.3352 | 0.3699 | 0.2617 | 0.4738 | 0.1221 |
| RHB-OSK Bond Fund | 0.5946 | 0.6210 | 0.5148 | 0.3575 | 0.8944 | 0.3171 |
| **Average** | **0.3776** | **0.4460** | **0.2254** | **0.2573** | **0.3888** | **0.1009** |
| Risk Free (MGS/2015) | 0.2749 | 0.0000 | 0.0000 | 1.0000 | 0.0000 | 0.0000 |
| Benchmark: RAM Quant Shop MGS Bond All TR | 0.2822 | 0.5832 | 0.0125 | 1.0000 | 0.0073 | 0.0000 |

Table 4.2 indicates the monthly return, standard deviation and performance measurement for Conventional bond Funds. This paper has used MGS/2015 and RAM Quant Shop MGS Bond All TR as a proxy for market risk free and market benchmark respectively.

The Conventional bond Funds monthly average returns over 48 months are ranging from 0.2360% to 0.5946%. On average mean return, Conventional bond funds achieved 0.3776%. The best Conventional bond Fund is RHB-OSK Bond Fund at 0.5946%. On another hand, it shown that Conventional bond Funds (0.3776%) are

underperformed when compared with the Islamic Bond Fund (0.3981%).

The conventional fund's average monthly standard deviations stood at 0.4460%, which are less volatile when compared with Islamic bond fund quoted at 0.5255%. Generally, this research show that both Syariah and conventional funds are less risky compared with the market benchmark, 0.5832%. The highest volatile Conventional bond fund is Manulife Investment Bond, recorded at 0.7531%.

The conventional fund's average Beta stood at 0.2573; lower than Islamic bond fund at 0.2682. It shows that the movement in Conventional bond funds is less volatile with respect to the market compared to the Islamic bond funds. Nevertheless, both bond funds have a low beta which indicates that generally market returns have a very low impact on the movement of bond funds.

On performance returns comparison in Sharpe, Treynor and Jensen Alpha, Conventional bond funds achieved 0.2254, 0.3888 and 0.1009 respectively, which are lower than the Islamic bond funds at 0.2627, 0.4526 and 0.1213 respectively. This indicates that the Islamic bond fund perform better than Conventional bond funds after we factor in the risk adjusted element. The outperform might be attributed to Islamic bond funds can invest into Government Investment Issues (GII); which carried a higher yield compared with the Malaysian Government Securities (MGS). Hence, the Islamic bond funds' return slightly better than conventional bond funds.

The fund with the highest Sharpe, Treynor and Jensen measure of 0.5148, 0.8944 and 0.31471 is RHB-OSK Bond Fund. On another hand, Kenanga Bond archived a

negative Sharpe, Treynor and Jensen recorded at -0.1323, -0.1144 and -0.0414 respectively. Unit trust funds are exposed to certain minimum yearly charge, for example trustee fees, tax agent fee, auditor fee, and fund accounting fees. Therefore, small size bond fund facing higher challenge to outperform the big bond fund size and market return.

## 4.3 Analysis of T-TEST & ANOVA

We further performed T-Test and ANOVA statistical across all performance measurement to compare the risk and adjusted return between Islamic bond funds with Conventional bond funds. The results of the t-Test and ANOVA are presented in tables below.

Table 4.3
Mean return for Islamic bond funds and Conventional bond funds

**t-Test: Two-Sample Assuming Unequal Variances**

| | Islamic | Conv |
|---|---|---|
| Mean | 0.398115 | 0.377604 |
| Variance | 0.009014 | 0.010689 |
| Observations | 10 | 10 |
| Hypothesized Mean Difference | 0 | |
| df | 18 | |
| t Stat | 0.462086 | |
| P(T<=t) one-tail | 0.324778 | |
| t Critical one-tail | 1.734064 | |
| P(T<=t) two-tail | **0.649556** | |
| t Critical two-tail | 2.100922 | |

**ANOVA: Single Factor**

SUMMARY

| Groups | Count | Sum | Average | Variance |
|---|---|---|---|---|
| Islamic | 10 | 3.981149 | 0.398115 | 0.009014 |
| Conv | 10 | 3.77604 | 0.377604 | 0.010689 |

ANOVA

| Source of Variation | SS | df | MS | F | P-value | F crit |
|---|---|---|---|---|---|---|
| Between Groups | 0.002103 | 1 | 0.002103 | 0.213523 | **0.649556** | 4.413873 |
| Within Groups | 0.177324 | 18 | 0.009851 | | | |
| Total | 0.179428 | 19 | | | | |

Table 4.3 shows the result of overall monthly mean return between Islamic bond fund and Conventional bond fund based on the t-test and ANOVA. The t-test P (T<=t) two-tail is 0.6495; and ANOVA P-value is 0.6495. Both data are higher than level of significant (0.05), hence we do not reject the null hypothesis. Both statistics tests displayed Islamic both funds' return is similar to Conventional bond funds.

Table 4.4
Standard Deviation (SD) for Islamic bond funds and Conventional bond funds

**t-Test: Two-Sample Assuming Unequal Variances**

| | Islamic | Conv |
|---|---|---|
| Mean | 0.525513 | 0.446034 |
| Variance | 0.233134 | 0.030181 |
| Observations | 10 | 10 |
| Hypothesized Mean Difference | 0 | |
| df | 11 | |
| t Stat | 0.489791 | |
| P(T<=t) one-tail | 0.316952 | |
| t Critical one-tail | 1.795885 | |
| P(T<=t) two-tail | **0.633903** | |
| t Critical two-tail | 2.200985 | |

**ANOVA: Single Factor**

SUMMARY

| Groups | Count | Sum | Average | Variance |
|---|---|---|---|---|
| Islamic | 10 | 5.255126 | 0.52551258 | 0.233134 |
| Conv | 10 | 4.460343 | 0.446034294 | 0.030181 |

ANOVA

| Source of Variation | SS | df | MS | F | P-value | F crit |
|---|---|---|---|---|---|---|
| Between Groups | 0.031584 | 1 | 0.03158399 | 0.239895 | **0.630198** | 4.413873 |
| Within Groups | 2.369835 | 18 | 0.131657477 | | | |
| Total | 2.401419 | 19 | | | | |

Table 4.4 shows the result of overall monthly standard deviation (measurement of risk) between Islamic bond fund and Conventional bond fund based on the t-test and ANOVA. The t-test P (T<=t) two-tail is 0.6339; and ANOVA P-value is 0.6302. Both data are higher than level of significant (0.05), hence we do not reject the null hypothesis. Both statistics tests displayed they are no significant differences in bond fund's risk between Islamic bond funds and Conventional bond funds.

Table 4.5:
Sharpe measure for Islamic bond funds and Conventional bond funds

**t-Test: Two-Sample Assuming Unequal Variances**

| | Islamic | Conv |
|---|---|---|
| Mean | 0.262682 | 0.225374 |
| Variance | 0.012705 | 0.043171 |
| Observations | 10 | 10 |
| Hypothesized Mean Difference | 0 | |
| df | 14 | |
| t Stat | 0.499099 | |
| P(T<=t) one-tail | 0.31273 | |
| t Critical one-tail | 1.76131 | |
| P(T<=t) two-tail | **0.62546** | |
| t Critical two-tail | 2.144787 | |

**Anova: Single Factor**

SUMMARY

| Groups | Count | Sum | Average | Variance |
|---|---|---|---|---|
| Islamic | 10 | 2.626824 | 0.262682 | 0.012705 |
| Conv | 10 | 2.253745 | 0.225374 | 0.043171 |

ANOVA

| Source of Variation | SS | df | MS | F | P-value | F crit |
|---|---|---|---|---|---|---|
| Between Groups | 0.006959 | 1 | 0.006959 | 0.2491 | **0.623754** | 4.413873 |
| Within Groups | 0.502889 | 18 | 0.027938 | | | |
| | | | | | | |
| Total | 0.509849 | 19 | | | | |

Table 4.5 shows the result of overall risk-adjusted return, Sharpe measure between Islamic bond fund and Conventional bond fund based on the t-test and ANOVA. The t-test P (T<=t) two-tail is 0.6255; and ANOVA P-value quoted at 0.6238. As both statistics numbers are higher than level of significant (0.05), therefore we accept the null hypothesis. Both statistic tests displayed they are no significant differences in term of risk-adjusted Sharpe return. It means, both funds have a similar return after taking into consideration the fund's risk element.

Table 4.6
Beta measure for Islamic bond funds and Conventional bond funds

**t-Test: Two-Sample Assuming Unequal Variances**

| | Islamic | Conv |
|---|---|---|
| Mean | 0.268161 | 0.257255 |
| Variance | 0.002134 | 0.00582 |
| Observations | 10 | 10 |
| Hypothesized Mean Difference | 0 | |
| df | 15 | |
| t Stat | 0.386701 | |
| P(T<=t) one-tail | 0.352204 | |
| t Critical one-tail | 1.75305 | |
| P(T<=t) two-tail | **0.704408** | |
| t Critical two-tail | 2.13145 | |

**ANOVA: Single Factor**

SUMMARY

| Groups | Count | Sum | Average | Variance |
|---|---|---|---|---|
| Islamic | 10 | 2.681611 | 0.268161 | 0.002134 |
| Conv | 10 | 2.572548 | 0.257255 | 0.00582 |

ANOVA

| Source of Variation | SS | df | MS | F | P-value | F crit |
|---|---|---|---|---|---|---|
| Between Groups | 0.000595 | 1 | 0.000595 | 0.149538 | **0.703511** | 4.413873 |
| Within Groups | 0.071588 | 18 | 0.003977 | | | |
| | | | | | | |
| Total | 0.072183 | 19 | | | | |

Table 4.6 shows the result of overall Beta measure between Islamic bond fund and Conventional bond fund based on the t-test and ANOVA. The t-test P (T<=t) two-tail is 0.7044; and ANOVA P-value quoted at 0.7035 As both statistics numbers are higher than level of significant (0.05), therefore we do not reject the null hypothesis. Both statistic tests displayed they are no significant differences in term of Beta measurement.

Table 4.7
Treynor measure for Islamic bond funds and Conventional bond funds

**t-Test: Two-Sample Assuming Unequal Variances**

| | Islamic | Conv |
|---|---|---|
| Mean | 0.452647 | 0.388767 |
| Variance | 0.107186 | 0.090854 |
| Observations | 10 | 10 |
| Hypothesized Mean Difference | 0 | |
| df | 18 | |
| t Stat | 0.453932 | |
| P(T<=t) one-tail | 0.327652 | |
| t Critical one-tail | 1.734064 | |
| P(T<=t) two-tail | **0.655303** | |
| t Critical two-tail | 2.100922 | |

**Anova: Single Factor**

SUMMARY

| Groups | Count | Sum | Average | Variance |
|---|---|---|---|---|
| Islamic | 10 | 4.526472 | 0.452647 | 0.107186 |
| Conv | 10 | 3.887668 | 0.388767 | 0.090854 |

ANOVA

| Source of Variation | SS | df | MS | F | P-value | F crit |
|---|---|---|---|---|---|---|
| Between Groups | 0.020404 | 1 | 0.020404 | 0.206055 | **0.655303** | 4.413873 |
| Within Groups | 1.78236 | 18 | 0.09902 | | | |
| | | | | | | |
| Total | 1.802764 | 19 | | | | |

Table 4.7 shows the result of overall risk-adjusted performance, Treynor measure between Islamic bond fund and Conventional bond fund based on the t-test and ANOVA. The t-test P (T<=t) two-tail is 0.6553; and ANOVA P-value quoted at 0.6553. As both statistics numbers are higher than level of significant (0.05), therefore we accept the null hypothesis. Both statistic tests displayed they are no significant differences in term of Treynor measurement.

Table 4.8
Jensen measure for Islamic bond funds and Conventional bond fund

**t-Test: Two-Sample Assuming Unequal Variances**

| | Islamic | Conv |
|---|---|---|
| Mean | 0.121289 | 0.100857 |
| Variance | 0.008996 | 0.010638 |
| Observations | 10 | 10 |
| Hypothesized Mean Difference | 0 | |
| df | 18 | |
| t Stat | 0.461098 | |
| P(T<=t) one-tail | 0.325125 | |
| t Critical one-tail | 1.734064 | |
| P(T<=t) two-tail | **0.650251** | |
| t Critical two-tail | 2.100922 | |

**Anova: Single Factor**

SUMMARY

| Groups | Count | Sum | Average | Variance |
|---|---|---|---|---|
| Islamic | 10 | 1.212886 | 0.121289 | 0.008996 |
| Conv | 10 | 1.008573 | 0.100857 | 0.010638 |

ANOVA

| Source of Variation | SS | df | MS | F | P-value | F crit |
|---|---|---|---|---|---|---|
| Between Groups | 0.002087 | 1 | 0.002087 | 0.212612 | **0.650251** | 4.413873 |
| Within Groups | 0.176705 | 18 | 0.009817 | | | |
| | | | | | | |
| Total | 0.178792 | 19 | | | | |

Table 4.8 shows the result of overall risk-adjusted performance, Jensen measure return between Islamic bond fund and Conventional bond fund based on the t-test and ANOVA. The t-test P (T<=t) two-tail is 0.6503; and ANOVA P-value quoted at 0.6503. As both statistics numbers are higher than level of significant (0.05), therefore we accept the null hypothesis. Both statistic tests displayed they are no significant differences in term of Jensen measurement.

## 4.4 Chapter Summary

The result shows that the overall bond funds outperformed the MGS/2015 (risk free rate) and RAM Quant (market benchmark). Descriptive Analysis show that Islamic bond funds are outperformed compared to Conventional bond fund in monthly return, beta and risk-adjusted return including Sharpe, Treynor and Jensen Alpha. Nonetheless results displayed that the Conventional bond funds tend to have a lower risk (standard deviation) compared to Islamic bond fund.

Table 4.9
Average statistics from descriptive analysis between Islamic bond funds and Conventional bond fund

| Bond Fund | MEAN Monthly Return | Average Monthly SD | SHARPE | BETA | TREYNOR | JENSEN ALPHA |
|---|---|---|---|---|---|---|
| Islamic | 0.3981 | 0.5255 | 0.2627 | 0.2682 | 0.4526 | 0.1213 |
| Conventional | 0.3776 | 0.4460 | 0.2254 | 0.2573 | 0.3888 | 0.1009 |
| Variance | 0.0205 | 0.0795 | 0.0373 | 0.0109 | 0.0639 | 0.0204 |

Besides, we further examined with the T-Test and ANOVA statistical across all performance measures. All statistics results displayed it is higher than the level of significant (0.05), therefore we are unable to reject null hypothesis. Hence, the results in T-Test and ANOVA presented they are no significant differences between Islamic bond fund and Conventional bond fund in term of all performance comparison. It might be possible due to the small variance difference between both bond funds across all performance measures (as shown in Table 4.9).

Besides, Islamic bonds are similar to conventional bonds in Malaysia. They always have fix term maturity, can bear a coupon or interest, and trade on the normal yield

price relationship. For conventional investors, the structuring of the bonds by the issuer is immaterial. The difference lies only in the way the issuer structures the bonds. Therefore, it might be possible attributed to statistics tests displayed both funds have no significant differences in fund's performance and risk.

In addition, the average funds size is quite similar between Islamic bond fund and conventional bond fund with fund size stood at RM 184million and RM 200 million respectively (shown in Table 3.1 and Table 3.2). Hence, the similar fund size might possible attributed no differences in fund's performance comparison and risk.

Furthermore, it might due to insufficient samples size. The total 960 monthly returns of 20 bond funds, from 2011 to 2014 which including the dividend yield was collected from Morningstar® Data. The 20 bond funds consists only 10 Islamic bond funds and 10 Conventional bond funds.

# CHAPTER 5

# CONCLUSION

## 5.1 Introduction

This chapter concludes the overall study and is divided into five sections. Section 5.2 presents the summary of the study, Section 5.3 provides the implications of the study, Section 5.4 discusses the limitation, and Section 5.5 provides the recommendations for further research.

## 5.2 Summary of the Study

The performances of 20 funds with 960 monthly returns were collected from January 2011 to December 2014. In this research, the fund performances are evaluated by using six performance measures namely mean return, standard deviation, beta, Treynor index, Sharpe index and Jensen index. This research using three methods to analysis and explain the findings through (1) descriptive analysis; (2) t-Test and (3) ANOVA.

The mean monthly returns of both Islamic bond fund and Conventional bond fund are higher than the market benchmark (RAM Quant) and risk-free rate (MGS/2015), as shown in Tables 4.1 and 4.2 above. When we compared between Islamic bond funds and Conventional bond funds, descriptive analysis shown that Islamic bond funds are outperformed the Conventional bond fund.

The standard deviation and beta of Islamic bond fund and Conventional bond fund are lower than the market benchmark, RAM Quant. This indicates that both bond funds are less volatile compared to the market movement. Nevertheless, descriptive analysis shown that Conventional bond fund is less risky compared to the Islamic bond funds.

In additional, when we further applied the risk-adjusted return between Islamic bond funds and Conventional funds; descriptive analysis show that Islamic bond funds are outperformed compared to Conventional bond fund in Sharpe, Treynor and Jensen Alpha. This outcome supports the theory of risk-trade off theory in which Conventional bond fund tend to have a lower risk (standard deviation) compared to Islamic bond fund.

On another hand, when we further performed T-Test and ANOVA statistical across all performance namely, mean return, Standard deviation, Sharpe, Beta, Treynor, and Jensen; all statistic result display they are no significant differences between Islamic bond fund and Conventional bond fund. This indicates the performance of Islamic bond funds and Conventional bond funds are similar.

## 5.3 Implications of the Study

The findings of this research is believed to be among the first of its kind done in Malaysia after the global subprime crisis back in 2008 with period of study between January 2011 to December 2014. This research discovers significant results on the performance of Islamic bond fund and Conventional bond fund.

This study could also benefit retail investors and corporate investors such as Khazanah, Kumpulan Wang Persaraan (KWAP), Kumpulan Wang Simpanan Pekerja (KWSP), Tabung Haji, Permodalan Nasional Berhad (PNB), insurance companies, asset management and unit trust companies in their investment strategies and asset allocations for return enhancement.

The descriptive statistics results displayed that Islamic bond funds outperformed compared to Conventional bond fund in Sharpe, Treynor and Jensen Alpha. Hence, unit trust companies should launch more Islamic bond funds, instead of Conventional bond funds. Moreover, it can strengthen the unit trust fund industry with more variables of products chosen.

## 5.4 Limitations

The time period studies by the funds was also limited as they are limited Islamic bond funds were launch prior to January 2011. Hence, this study only concentration on from January 2011 to December 2014, in which the results might be more reliable if a longer time period, is analyzed.

Besides, this study addressed the risk-adjusted returns of local Islamic bond funds and Conventional bond funds without considering the funds' size, asset allocations, and geographical allocation, permitted investment classes, management fees, trustee fees, exit fees and performance fees which might affected the fund's return as well as performance over period of studies.

## 5.5 Recommendations for Further Research

The study makes a comparison between Syariah bond funds and Conventional bond funds. Further studies are recommended to make an assessment on the performance of Syariah bond funds and Conventional bond funds between local and international market.

Other areas of future research are to make a comparison on the performance of both types of bond funds base on the fund's size and geographical allocation. In addition, it is also suggested the future research to analyze Islamic bond funds and Conventional bond funds base on securities selection and market timing.

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